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March 4, 2010

James T. Owens, III
Director, Office of Site Remediation and Restoration
U.S. Environmental Protection Agency. Region I
5 Post Office Square, Suite 100
Boston, MA 02101-3912

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Dispute Resolution on Certain Conditions in EPA's Conditional Approval Letter for GE's Work Plan for Evaluation of Additional Remedial Alternatives

Dear Mr. Owens:

On January 29, 2010, pursuant to Special Condition II.N.1 of the Reissued RCRA Corrective Action Permit (the Permit) issued by the U.S. Environmental Protection Agency (EPA) to the General Electric Company (GE) in 2000 (and reissued in December 2007), GE invoked dispute resolution with respect to certain conditions (Conditions 20 and 22) set forth in EPA's letter of January 15, 2010, providing conditional approval of GE's August 31, 2009 *Work Plan for Evaluation of Additional Remedial Alternatives* (Work Plan) for the Rest of River portion of the Housatonic River. Subsequently, in accordance with Special Condition II.N.2 of the Permit, GE and EPA engaged in discussions at the staff level in an effort to resolve the dispute. GE and EPA extended the period for those discussions until February 22, 2010. However, GE and EPA were not able to resolve the dispute through those discussions.

Pursuant to Special Condition II.N.3 of the Permit, GE requests that you resolve this dispute. In accordance with that provision, I am enclosing GE's Statement of Position, which sets forth GE's objections to Conditions 20 and 22 in EPA's January 15, 2010 letter and the bases for GE's position.

In addition to the specific conditions involved in this dispute, GE disagrees with a number of the other conditions and statements in EPA's January 15, 2010 letter. GE expressly reserves all its rights to contest any of the conditions, directives, and statements in that letter – including GE's right, pursuant to Special Condition II.N.5 of the Permit, to raise any of its objections in a challenge to EPA's modification of the Permit to select corrective measures for the Rest of River, as well as any other rights that GE has under the Permit, the Consent Decree, or applicable law to raise such objections in the future.

Please let me know if you have any questions about our position or would like any further information.

Very truly yours,

Andrew T. Silfer, P.E.
GE Project Coordinator

Enclosure

cc: Richard Cavagnero, EPA
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GENERAL ELECTRIC'S STATEMENT OF POSITION ON DISPUTED CONDITIONS 20 AND 22 OF EPA'S CONDITIONAL APPROVAL OF GE'S WORK PLAN FOR EVALUATION OF ADDITIONAL REMEDIAL ALTERNATIVES

March 4, 2010

INTRODUCTION

On August 31, 2009, the General Electric Company (GE) submitted to the U.S. Environmental Protection Agency (EPA) a *Work Plan for Evaluation of Additional Remedial Alternatives* (Work Plan) for the Rest of River area of the Housatonic River.[1] That Work Plan provided for the evaluation of certain additional remedial alternatives that were not evaluated in GE's March 2008 Corrective Measures Study (CMS) Report. Those additional alternatives were: (a) a combination of additional sediment and floodplain remediation alternatives referred to jointly in the Work Plan as the Ecologically Sensitive Alternative and separately as SED 10 and FP 9; and (b) additional sediment and floodplain remediation alternatives that EPA had developed and requested GE to evaluate, referred to in the Work Plan as SED 9 and FP 8, respectively.

EPA had initially requested GE to evaluate the new sediment alternative now known as SED 9 in a letter to GE dated April 1, 2009, in which EPA explained that that alternative would use "wet excavation" techniques (i.e., removal through the water column) to remove PCB-containing sediments and riverbank soils in approximately the first seven miles of the Rest of River (Reaches 5A and 5B). On May 1, 2009, GE submitted a draft work plan for the evaluation of that alternative, as well as the alternative combination now known as SED 10/FP 9. The draft work plan assumed that sediment removal in Reaches 5A and 5B under SED 9 would be performed in the wet by excavation equipment operating from the top of the riverbank. At a meeting to discuss the draft work plan on July 8, 2009, EPA indicated that it wanted SED 9 to use a different sediment removal technique in Reaches 5A and 5B – wet

[1] This Work Plan was submitted as an addendum to GE's February 2007 Corrective Measures Study Proposal for the Rest of River, which was submitted pursuant to the Resource Conservation and Recovery Act (RCRA) Corrective Action Permit issued by EPA to GE on July 18, 2000 and reissued on December 5, 2007 (the Permit).

excavation by equipment operating within the river channel itself. However, EPA refused to provide details regarding this technique.[2]

GE's Work Plan described the additional alternatives and GE's proposed methodology for evaluating them. For SED 9, consistent with the Agency's direction that excavation be performed from within the river channel in Reaches 5A and 5B, the Work Plan proposed that: (a) for Reach 5A (where the water depths make use of barges infeasible), sediment excavation would be assumed to be performed using conventional equipment (e.g., excavators, off-road trucks) operating on the channel bottom, using a gravel road or swamp mats or platforms placed directly on the riverbed; and (b) for Reach 5B, excavation would be assumed to be performed using barge-mounted conventional equipment. The Work Plan further noted that, in order to assess SED 9 using EPA's model, it would be necessary to revise the dredging production rates and PCB resuspension rates to reflect these dredging methods. GE explained that, since SED 9 would involve sediment excavation in Reach 5A using equipment operating in the river channel while the river water was flowing, the resulting production rates would be lower and the PCB resuspension rates would be higher than those previously approved for a different dredging method, mechanical dredging from barges, in Reach 5C and other downstream areas. In addition, GE proposed to reduce the production rate in both Reaches 5A and 5B to account for higher water current velocities in those reaches. GE's proposed production rates and PCB resuspension rates were presented in Appendix C to the Work Plan.

On January 15, 2010, EPA conditionally approved the Work Plan.[3] Its conditional approval letter included conditions relating to Appendix C of the Work Plan. In Condition #20, EPA rejected GE's lower production rates for implementation of SED 9 in Reaches 5A and 5B and directed GE to use the same production rate assumed for mechanical dredging in further downstream reaches. In Condition #22, EPA rejected GE's higher PCB resuspension rates for

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[2] At this meeting, EPA also indicated that it also wanted GE to evaluate a new floodplain alternative (now known as FP 8). As promised at the meeting, EPA sent a follow-up e-mail to GE on the same day providing a general description of both SED 9 and FP 8, but it provided no specifics regarding how wet excavation by equipment operating within the river could be accomplished under SED 9.

[3] EPA's conditional approval letter did not comment on and thus approved the specific dredging techniques included in the Work Plan for SED 9 – namely, use of conventional excavation and transport equipment operating on the channel bottom in Reach 5A and use of barge-mounted excavators in Reach 5B.

implementation of SED 9 in Reach 5A and directed GE to use the same resuspension rate used for mechanical dredging from barges.

On January 29, 2010, pursuant to Special Condition II.N.1 of the Permit, GE invoked dispute resolution regarding these conditions of EPA's approval of the Work Plan, and submitted a Statement of Position showing that those conditions were arbitrary and unsupported. Subsequently, in accordance with the dispute resolution provisions of the Permit, GE and EPA engaged in discussions in an attempt to resolve the disputes.[4] During those discussions, EPA indicated that the production and resuspension rates that it had directed GE to use could be met through the use of a different and novel dredging approach in Reach 5A that EPA had not previously mentioned to GE.[5] EPA did not agree to any change in its required production and resuspension rates for SED 9, and its suggested approach does not resolve GE's disagreement with those rates.

Since GE and EPA were not able to resolve these disputes through informal discussions, GE is submitting this Statement of Position pursuant to Special Condition II.N.3 of the Permit to seek resolution of these disputes by the Region I Director of the Office of Site Remediation and Restoration. Sections 1 and 2 of this Statement show that EPA's directives regarding the production and resuspension rates for SED 9, as set forth in its January 15, 2010 conditional approval letter, were unsupported and arbitrary. Section 3 shows that EPA's recent verbal description of an alternate approach to dredging in Reach 5A is a *post hoc* rationalization for those directives that does not justify the rates required by EPA.[6]

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[4] EPA and GE agreed to extend the initial 14-day discussion period provided for in Special Condition II.N.2 of the Permit until February 22, 2010.

[5] This approach is described in Section 3 and note 16 below.

[6] GE expressly reserves all of its arguments and all of its rights to contest these or any of the other conditions, directives, and statements in EPA's January 15, 2010 letter – including its right, pursuant to Special Condition II.N.5 of the Permit, to raise any of its objections in a challenge to EPA's modification of the Permit to select corrective measures for the Rest of River, as well as any other rights that GE has under the Permit, the Consent Decree, or applicable law to raise such objections in the future.

GE POSITION

1. EPA's Directive To Use the Same Dredging Production Rate for SED 9 in Reaches 5A and 5B as Is Used for Mechanical Dredging Further Downstream Was Unsupported and Arbitrary.

a. GE Properly Proposed Lower Production Rates for SED 9 To Account for Operating from the Riverbed in Reach 5A and for Higher Water Velocities in Reaches 5A and 5B.

As stated in the CMS Report, an average production rate (over the construction season) of 275 cubic yards per day (cy/d) was selected for mechanical dredging performed "in the wet."[7] This daily average rate was based on the assumption that dredging would occur from a barge in Reach 5C and downstream, where relatively deep water would make dredging using barges feasible.

However, as discussed in Appendix C to the Work Plan, average water depths in Reach 5A (i.e., typically less than 3 to 4 feet) make the use of barges for "wet excavation" infeasible in that reach. Therefore, consistent with EPA's general description of SED 9, GE assumed that sediment excavation in Reach 5A would be performed with conventional equipment (e.g., excavators, off-road trucks) operating on the bottom of the river channel while the river was flowing. To facilitate such operations, access ramps providing entry to the channel would be constructed, and temporary roads would be constructed along the channel bottom.[8]

Because of the difficulties and risks associated with operating equipment in the river with the river water flowing, vehicle speeds and overall progress would be slowed significantly, and the

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[7] As explained further in GE's March 2009 Response to EPA's Interim Comments on CMS Report (Response to Specific Comment 49), this average rate was estimated by assuming an excavation rate of 350 cy/d for full-scale production dredging and then subtracting from this rate the number of days estimated for the performance of necessary non-excavation activities (e.g., mobilization/demobilization, construction of temporary sediment staging areas and access roads, capping/backfilling, bank stabilization/restoration) plus 10% construction "downtime" (e.g., time related to equipment breakdowns, obstructions, extreme weather, etc.), so as to arrive at an ***average*** daily rate for the construction season. The resulting average rate of 275 cy/d is equivalent to 54,450 cy per year, based on an assumed schedule of 198 working days per year (i.e., 22 days per month for nine months – then assumed to be March through November). For comparison, EPA's implementation of the sediment/bank soil excavation project in the 1½ Mile Reach of the Housatonic River, using dry excavation techniques, had an average annual production rate of approximately 25,500 cy per year.

[8] The temporary roads in the river were assumed to consist of gravel or a series of swamp mats or modular platforms placed directly on the riverbed, over which heavy equipment could travel.

cycle time required for the removal of individual truck loads of material would be increased relative to the use of access roads on the top of the riverbanks. For example, the use of temporary roads in the river would limit the number of transport vehicles in the river channel to just one truck at a time, with additional vehicles staged and waiting for passage over the road in the river. Further, without the construction of additional access roads and/or turnarounds, each truck would have to travel in reverse for one leg of the round trip along the bottom of the river. Combined, these limiting factors would increase the handling/transport time associated with each truck load, thereby reducing the overall number of loads of excavated/capping materials (per day) relative to mechanical dredging from a barge floating on the river surface. In light of these and other factors, GE estimated that the overall average production rate of mechanical dredging in the wet from the channel bottom in Reach 5A would be approximately 30-35% slower than the estimated production rate of mechanical dredging in the wet from barges in the downstream reaches. This reduction would be in addition to the reductions due to non-excavation activities and general downtime (described in note 7 above), which would be associated with any mechanical dredging.

In addition, GE explained that Reach 5A, as well as Reach 5B (where GE assumed that mechanical removal would be performed using barge-mounted equipment), have higher water velocities than further downstream reaches, which would lead to additional downtime beyond the general downtime estimated for mechanical dredging in any reach.[9]

Based on these factors, GE proposed to use the following average daily production rates for implementation of SED 9: 165 cy/d for Reach 5A (considering both the reduced efficiency of performing mechanical dredging from within the channel and the likely increased downtime

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[9] Specifically, GE noted that silt curtains, which would be anticipated to be used to help control resuspension under SED 9, have diminished effectiveness and stability in higher water velocities and are not recommended for use in water velocities greater than 1.5 feet per second (fps) (Francingues and Palermo, 2005). Thus, during such conditions, dredging operations might have to shut down to avoid uncontrolled resuspension. Further, GE determined the average number of days between March and November with anticipated high flows that could lead to temporary cessation of wet excavation (either because of water current velocities greater than 1.5 fps and/or because of flows at or above the 2-year flood level) (Figure C-1 of Appendix C), and estimated that on an overall reach-wide basis, there would be approximately 30 such days in Reach 5A and approximately 15 in Reach 5B. By contrast, the assumed schedule of 198 working days per year for more downstream reaches did not include such a specific reduction in productivity for flow-related shutdowns.

due to high water velocities); and 255 cy/d for Reach 5B (considering the likely increased downtime due to high water velocities).

b. EPA's Rejection of a Lower Production Rate for Operating from the Riverbed Was Unsupported.

EPA rejected these proposals. In Condition #20 of its January 15, 2010 conditional approval letter, EPA stated that an average production rate of 275 cy/d (equivalent to 54,450 cy per year) is achievable for both Reaches 5A and 5B. EPA failed to provide any information, rationale, or details supporting this conclusion or selection of this production rate for these reaches. In particular, it provided no response whatsoever to GE's demonstration in Appendix C that, due to the different river conditions in Reach 5A and the resulting difference in the dredging method (i.e., construction and use of temporary roads in the river channel and excavation using conventional equipment operating on the channel bottom while the river is flowing), the production rate in Reach 5A would necessarily be lower than that assumed for mechanical dredging from barges in the downstream reaches. Instead, EPA simply asserted, without providing any support, that the same production rate used for the latter could be achieved in Reach 5A for SED 9, and it directed GE to use that rate. That directive was entirely arbitrary.

c. EPA's Rejection of a Lower Production Rate Due to River Flow Conditions in Reaches 5A and 5B Had No Supportable Rationale.

In addition, EPA did not provide a supportable rationale for disapproving GE's proposal to reduce the production rates in both Reaches 5A and 5B (compared to Reach 5C and downstream) to account for the likely increased downtime due to higher water current velocities. It gave no reason at all for rejecting the point that the higher velocities in those reaches will limit the ability to work in the river on some days, thus requiring a modification in the production rate (in addition to the general downtime modification for any mechanical dredging, which was based on many other factors besides flow).[10]

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[10] EPA did assert, in Condition #21, that the Francingues and Palermo (2005) reference cited by GE with reference to silt curtains "does not state that silt curtains are not recommended for velocities higher than 1.5 ft/sec," but "states that currents greater than 1 to 1-½ knots are problematic, . . . and this current velocity is the accepted industry standard for conventional silt curtain deployment, effectively limiting deployment, except on a

GE's conclusion that river conditions in Reaches 5A and 5B would limit the ability to work in the river and thus warrant a further reduction in the production rate is supported by review of the number of days when water depth would prevent safe operation of equipment within the river channel in Reach 5A. For purposes of this analysis, it is assumed that conventional equipment could not operate safely in water depths greater than 3 feet, so if a substantial portion of the river (e.g., more than 75%) had water depths over 3 feet, work within the river channel would not be able to be performed. GE has estimated that this would occur, on average, on approximately 36 days over the assumed annual 198-day construction season.[11] This estimate was based on use of the hydrodynamic model developed by EPA. The graph below shows the percentage of area in Reach 5A having model-predicted water depths greater than 3 feet during the assumed construction season, corresponding to various ranges of flow (at Pomeroy Avenue Bridge near the upstream end of Reach 5A).[12]

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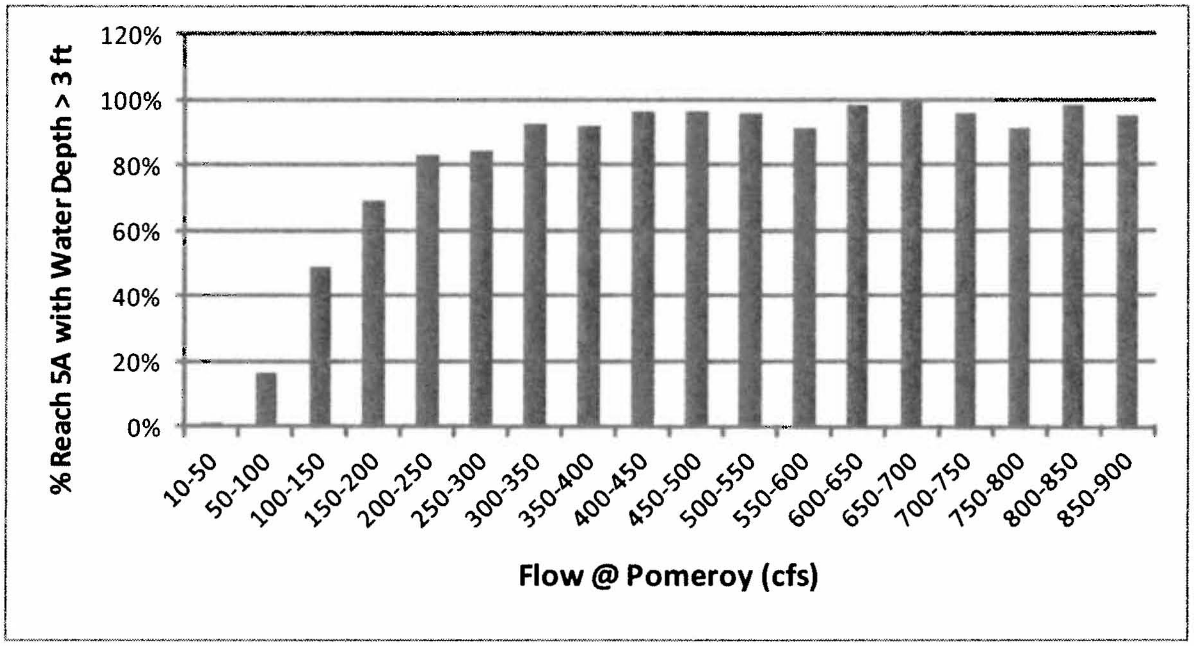
case-by-case basis." Since 1 knot equals 1.688 ft/sec (which is close to 1.5 ft/sec) and since this paper concludes that "the 1 to 1-½ knot value appears to be an industry standard," this reference generally supports GE's conclusion about the limitations on the use of silt curtains under high water velocities. In any event, GE's point went beyond the precise water velocity recommended as a limiting condition for silt curtain use. GE's more general point was that Reaches 5A and 5B have higher velocities than downstream reaches and that these conditions are likely to limit the ability to work in the river on some occasions, requiring an additional modification in the production rate beyond the estimated 10% downtime for any mechanical dredging. As noted in the text, EPA provided no reason for rejecting that more general point.

[11] Although GE originally assumed a 9-month construction season of March through November (consistent with all of the alternatives evaluated in the CMS), EPA stated during the recent discussions on this dispute that use of a 9-month construction season of May though January would better avoid high-flow events. Hence, in this illustrative analysis, GE has used the latter construction season.

[12] This plot was developed based on the model predictions of water depth over the full range of flow events simulated in EPA's 26-year validation period. The percentages shown correspond to the area of grid cells within Reach 5A that are predicted to have a water depth greater than 3 feet at the given flow range.



The above figure shows that more than 75% of Reach 5A will have water depths greater than 3 feet during the assumed construction season[13] when flow in the river at Pomeroy Avenue exceeds 200 cubic feet per second (cfs). Review of the flows in EPA's model during that season over the 26-year model validation period indicates that the average number of days per construction season in which flow exceeds 200 cfs is approximately 36 (which represents 18% of the assumed 198-day construction season). This illustrative analysis supports GE's additional adjustment for flow-related downtime in Reach 5A (beyond the general adjustment for downtime).

d. EPA's Alternate Suggestion of Working Year-Round Was Also Unjustified.

EPA also stated in Condition #20 that, in the alternative, GE may consider a lower daily average production rate for SED 9 but only if the construction schedule is increased from 198 to 264 days (66 additional days), with work assumed to occur on some weekends and throughout the winter months, so that the annual production rate still reaches 54,450 cy per year. However, making such an assumption for SED 9 would be inconsistent with the EPA-approved schedule assumption of 198 days/year for all of the other sediment remedial

[13] As noted above, that season has been assumed for this analysis to be May through January.

alternatives, and in direct conflict with EPA's often-stated mandate requirement that all of the alternatives be evaluated objectively on an equal footing. In any event, it is unreasonable to assume for purposes of the CMS that a multi-year "in the wet" dredging project could be performed consistently year-round, including during the winter and the early spring high-flow months.

2. EPA's Directive To Use the Same PCB Resuspension Rate for Excavation Using Conventional Equipment on the Bottom of the Flowing River as Is Used for Mechanical Dredging from a Barge Was Unsupported and Arbitrary.

a. GE Properly Increased the Resuspension Rates for Dredging in Reach 5A under SED 9 To Reflect Working on the River Bottom with Water Flowing.

The rate of resuspension of PCBs during dredging is generally related to the type of equipment used, including both dredging equipment and potential containment measures. In consideration of the range of resuspension estimates provided in the literature and professional judgment based on experience at other sites, resuspension rates of 1% of the dredged sediment PCB mass for hydraulic dredging and 2% for mechanical dredging were selected and approved by EPA for the model simulations of dredging presented in the CMS Report. The latter estimate was based on cases studies where work was performed with barge-mounted mechanical dredging equipment.

In Appendix C to the Work Plan, GE proposed the use of higher PCB resuspension rates for simulation of sediment removal in Reach 5A under SED 9. The reasons for proposing such higher resuspension rates were that: (1) the higher water velocities in Reach 5A would be expected to increase resuspension rates; and (2) the performance of sediment removal in Reach 5A using conventional equipment (e.g., excavators, trucks) operating on the bottom of the channel while the river is flowing would cause disturbances of the river channel bottom and associated PCBs that would increase the resuspension rates relative to those resulting from dredging from barges.

In Appendix C, GE recognized that there is uncertainty in estimating the resuspension rate associated with sediment excavation using equipment operating on the river bottom. Indeed, to our knowledge, there are no data from sites where such removal techniques were used. Thus, GE proposed specifying the resuspension rate in the model for SED 9 in Reach 5A as a range to capture this uncertainty. Specifically, GE proposed a range of 5% to 9% for resuspension at the excavator, based on values from NRC (2001) (cited by EPA, 2005).

b. EPA's Rejection of GE's Resuspension Rates for SED 9 Was Arbitrary.

In Condition #22 of its January 15, 2010 letter, EPA rejected GE's proposal and directed GE to use, in the evaluation of SED 9, the same resuspension rate previously approved for mechanical dredging from a barge. EPA's conclusion was arbitrary and unrealistic. Although there are no data on the resuspension that would occur with a dredging technique involving operation of excavators and trucks on the bottom of a flowing river, it is clear that that method would result in a higher resuspension rate than dredging from a barge.[14] For example, the movement of trucks and other equipment into and out of the flowing river on access roads built on PCB-containing riverbanks and along the existing river bottom on roads constructed of gravel (or swamp mats or modular platforms) placed directly on top of sediments containing PCBs would result in mobilization of those PCB-containing sediments and bank soils beyond that which would occur during the excavation process itself. The construction of those roads themselves would further disturb and mobilize the PCB-containing sediments and bank soils. The combined effects of these activities and the excavation activities within the flowing river channel would result in resuspension at the excavation point well beyond that which would occur during use of barge-mounted equipment.

In addition, the increased water velocities in Reach 5A compared to downstream reaches (as discussed in Section 1 above) would contribute to the likelihood of increased resuspension in that reach. Further, situations where river flows rise rapidly (as is the case for the Housatonic) and equipment and/or roads are located within the river channel and exposed to increased

[14] EPA's Condition #22 cited various papers on environmental dredging that reported average resuspension rates of around 1% for mechanical dredging. However, EPA did not address GE's main point – i.e., that excavation performed by excavation equipment and trucks operating on the bottom of a flowing river would cause a higher resuspension rate than barge-mounted equipment.

current velocities can result in flow constrictions and increased sediment erosion due to locally elevated velocities beneath and adjacent to the equipment.[15]

It was arbitrary for EPA to ignore these differences between mechanical dredging from a barge in the slower downstream portions of the river and the type of dredging from the river bottom that EPA has required for SED 9 in Reach 5A, and to simply direct use of the same resuspension rate for both. Moreover, EPA did not address GE's proposal that, given the absence of data on the extent of the increase in resuspension resulting from excavation activities and the movement of excavators and trucks on the bottom of a flowing river channel, a range of resuspension rates should be used as a sensitivity analysis in the model.

3. EPA's Post-Decision Description of an Alternate Dredging Method for SED 9 Is an Unwarranted *Post Hoc* Rationalization That Does Not Justify the Required Rates.

During the discussions between GE and EPA staff following GE's notice of this dispute, EPA indicated that the production and resuspension rates that it required for SED 9 could be met in Reach 5A through the use of a dredging approach different from that specified in the Work Plan. Based on EPA's verbal description (which is the only description that has been provided to GE), that approach would involve the concurrent performance of (a) excavation activities for the sediments and adjacent riverbank soils and (b) riverbed capping/bank stabilization activities, operating in both cases from a road in the river that would be incrementally excavated and capped as operations proceed, and using separate sets of equipment and crews

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[15] Apart from these factors, several points should be noted about the papers cited by EPA for estimates of around 1% resuspension for mechanical dredging (Bridges et al., 2008; Hayes and Wu, 2001; Palermo et al., 2008). Those papers not only did not involve dredging with equipment operating from the channel bottom, but also mostly involved navigable portions of estuaries, lakes, embayments, harbors, ship channels/terminals, or larger and deeper river systems – all of which are significantly different from Reach 5A. Moreover, the resuspension values reported in those papers were generally measurements of ***sediment*** resuspension rates (based on the mass of solids), rather than ***contaminant*** resuspension rates (based on the mass of PCBs dredged). The release of dissolved-phase PCBs in addition to the release of sediments containing PCBs can increase the ***PCB*** resuspension rates.

The recent experience of mechanical dredging of the Hudson River from barges showed an overall PCB resuspension rate of 3% at least a mile downstream of the dredging operations, with a rate of approximately 4% outside areas with resuspension controls (Anchor QEA and ARCADIS, 2010). This is similar to the resuspension rates of 3% during hydraulic dredging in the Grasse River (Connolly et al., 2007), 2.2% during pilot hydraulic dredging in the Fox River (USGS, 2000), and 1.3% to 5.8% of solids during pilot clamshell dredging in the Passaic River (Lower Passaic River Restoration Project Environmental Dredging Pilot Study Work Group, 2009). The experience at these sites indicates that even the 2% resuspension rate assumed for mechanical dredging from a barge on the Housatonic River is conservative.

for excavation and capping/stabilization, including specialized transport vehicles known as "crawler carriers."[16]

a. EPA's Description of an Alternate Dredging Approach Is an Unwarranted Post Hoc Rationalization for Its Directives.

EPA's post-dispute description of an alternate dredging approach is a *post hoc* rationalization for EPA's decision. When EPA first raised the idea of dredging from within the river channel, it rejected GE's request for any details about the technique to be used. Accordingly, GE made a proposal in the Work Plan as to how such dredging would be implemented. EPA's January 15, 2010 conditional approval letter did not suggest the use of an alternate dredging approach, either as a basis for its required production and resuspension rates or otherwise. In fact it approved the dredging approaches described in the Work Plan for Reaches 5A and 5B. EPA's subsequent description of an alternate approach during the dispute resolution process does not justify its previously unsupported and arbitrary directives. It is well established in administrative law that an agency's determination must be judged on the basis of the agency's contemporaneous stated reasons for making that determination and cannot be supported by *post hoc* rationalizations supplied later on review. See, e.g., *SEC v. Chenery Corp.*, 318 U.S. 80, 95 (1943); *Industrial Union Dep't v. American Petroleum Institute*, 448 U.S. 607, 631 n. 31 (1980). The same principle should apply here.

[16] Under this approach, as we understand it from EPA's verbal description, starting at the upstream end of the reach, access ramps would be built on the river banks providing entry to the channel from access roads connected to existing roadways. A road would then be incrementally built in the river along one bank through excavation and capping of that linear area; and that road would be used by the relevant equipment to excavate into the channel as well as the adjacent riverbanks and to construct the sediment cap and stabilize the banks. Specifically, after the first excavator had advanced 200 feet or so down the road, a second excavator would start to cap the remainder of the channel (as well as to stabilize the banks), and this approach would continue throughout the reach working from upstream to downstream. Under this approach, each excavator would be paired with one or more "crawler carriers," which would be used either to transport cap material in or to transport excavated sediments and riverbank soil out. A crawler carrier is a small material transport vehicle designed for use in swampy areas. It has low ground pressure and rotates on its tracks so that it can proceed in either direction without turning around. Apparently, in EPA's view, this approach could be implemented in Reach 5A at about the same rate as dredging from a barge and would largely prevent the movement of trucks and other equipment on the existing river bottom (since they would remain on the constructed road), thus reducing resuspension.

b. EPA's Alternate Dredging Approach Has Severe Limitations That Would Appear To Prevent Attainment of the Rates Directed by EPA.

In any event, we are unaware of any precedent for the technique suggested by EPA indicating its feasibility on the scale that would be involved in SED 9. Further, there are many apparent limitations of that technique that would make it unworkable and/or incapable of achieving the rates directed by EPA. These include the following:

- *Water depth limitations of crawler carrier*: The crawler carrier was not developed for working in water and does not appear to have sufficient clearance to operate in much more than two feet of water. As a result, the crawlers could not be used in areas with water depths exceeding two feet, or else access or working roads built in the channel would have to be constructed to higher elevations to facilitate crawler operations. In the latter case, additional time would be necessary to construct as well as remove these additional road materials.

- *Capacity limitations of the crawler carrier*: Although the heaped capacity of the crawler carrier is 8 cy, its capacity when carrying wet sediments would be much less, probably about half of its total capacity, due to the aqueous nature of the sediments and the potential for spillage in the river and when going up the access ramps if it were full.

- *Speed limitations of the crawler carrier*: The crawler would need to operate in low gear in the river, which would be approximately 2.8 mph.

- *Maneuvering difficulties associated with two-way traffic associated with concurrent operations*: Sufficient area would need to be available for the crawlers to pass and for the crawlers to get around the excavators in the river. This would necessitate the construction of wider access roads or more frequent turn-outs.

- *Inability of the long-reach excavator to reach across the channel in all areas*: The effective reach of a long-reach excavator of the type that could be used for this application in Reach 5A is 50 to 60 feet. Such an excavator would not be able to reach the sediments and banks on the opposite side from the road in portions of Reach 5A where the width of the river exceeds approximately 75 feet (taking into account the width of the road). Review of 152 transects across the river in Reach 5A indicates that, at approximately half of those transects (79), the distance from the edge of water along one bank to the top of bank on the other side is greater than 75 feet.

- *Use of open bucket excavator*: Under the approach suggested by EPA, use of a clamshell bucket that fully closes, such as can be used on barge-mounted dredges, would not be feasible. Instead, a long-reach excavator with an open bucket would have to be used, which would increase the release of dredged material into the water.[17]

These factors undermine the feasibility of the method suggested by EPA or at least its ability to meet the required rates. For example, from a productivity standpoint, GE has estimated the daily excavation rate in Reach 5A using EPA's method based on the following assumed cycle time: 2 minutes for the crawler carrier to travel an average distance of 500 feet (i.e., the assumed halfway point between channel access points); 5 minutes to load 4 cy of sediment; 2 minutes to travel back 500 feet to the staging area; and 5 minutes to unload – for a total cycle time of 14 minutes for 4 cy. Doubling this to account for two crawlers and two-way traffic (which are the most that could practicably operate in a given river area under this approach) would allow removal of 8 cy in 14 minutes, which is a removal rate of approximately 0.57 cy/minute. This would amount to a full-scale excavation rate of 275 cy/day at 8 hours per day during dredging, without any adjustment to take into account the non-excavation activities and downtime (described above) that need to be considered in deriving an ***average*** daily production rate. This unadjusted rate is much lower than 350 cy/day unadjusted daily excavation rate that has been used for wet excavation from a barge for other reaches (see note 7 above). When this rate of 275 cy/d is adjusted to account for non-excavation activities and downtime, including the additional downtime resulting from higher flows in Reach 5A, the average production rate would be much lower. Based on an average reduction of 50 cy/d for non-excavation activities and a 10% reduction for general downtime (both of which are the same as assumed for all other sediment alternatives), together with an additional reduction of 18% for work stoppage due to

[17] Palermo et al. (2008, p. 160) reported that backhoe excavators had resuspension rates that were 2-3 times those of clamshell dredges.

high flows in Reach 5A (36 days in an assumed 198-day construction season, as discussed in Section 1.c), the resulting average daily production rate for the season would be 166 cy/d. Additionally, working in the manner suggested by EPA would mean that there would be up two excavators and four crawlers attempting to work in the same 1,000-foot section of the river. At a minimum, this would further slow production.

In addition, apart from the feasibility issues described above, a number of aspects of EPA's suggested approach for Reach 5A would lead to increased resuspension. These include the bank soil disturbances in building access ramps on the banks and the need to use an excavator with an open bucket for excavating sediments and bank soils (see note 17 above), as well as the increased water velocity in Reach 5A as described above.

CONCLUSION

For the reasons given above, the Director of the Office of Site Remediation and Restoration should direct the withdrawal of Comments #20 and #22 and should provide, or direct the EPA staff to provide, a clear explanation of the dredging approach that EPA wants GE to use for SED 9 for purposes of evaluating that alternative in the revised CMS Report.

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